

952,412.

A. J. BLACKFORD.
GASOLENE BURNER.
APPLICATION FILED NOV. 20, 1909.

Patented Mar. 15, 1910.
3 SHEETS—SHEET 1.

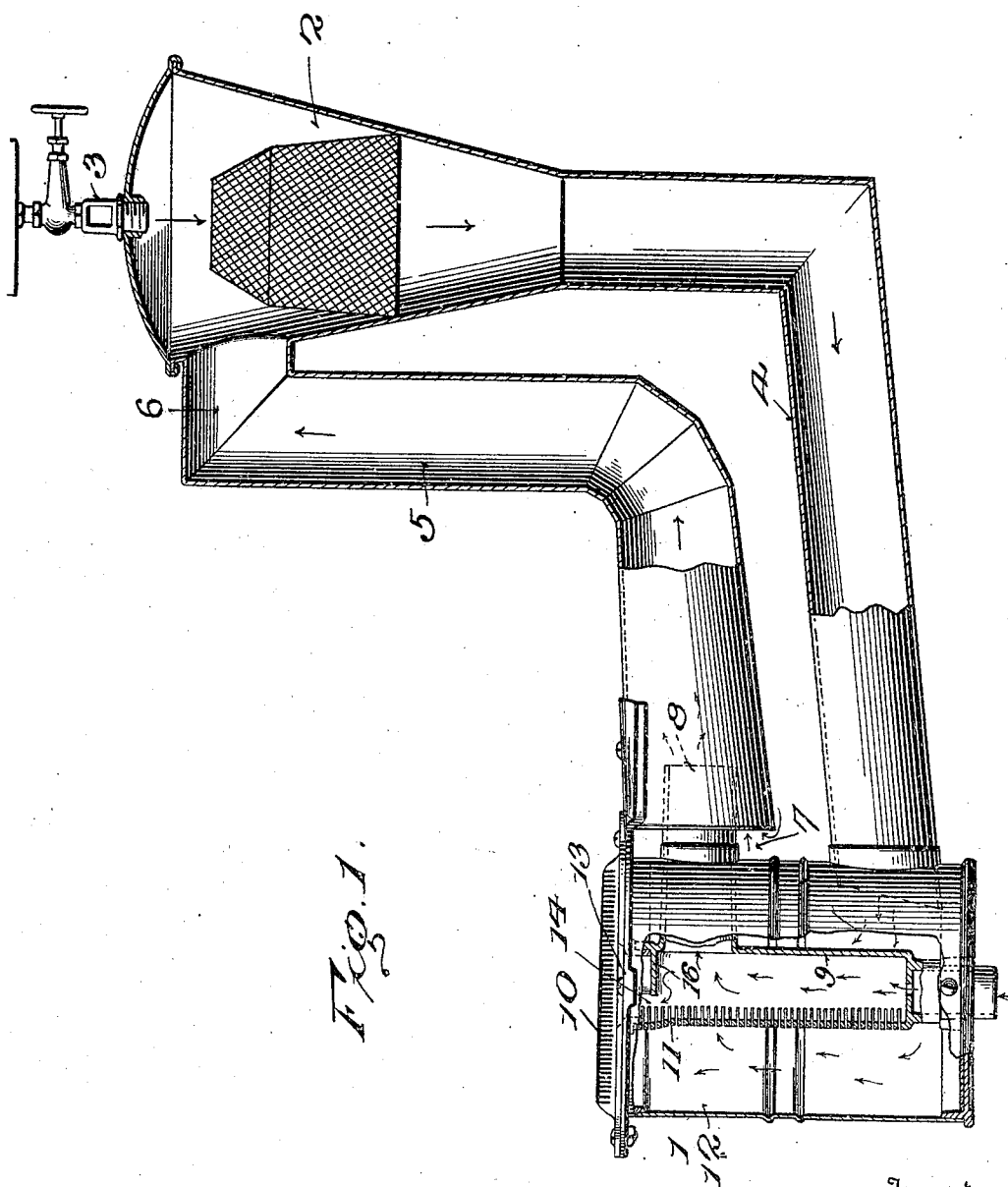


Fig. 1.

Witnesses

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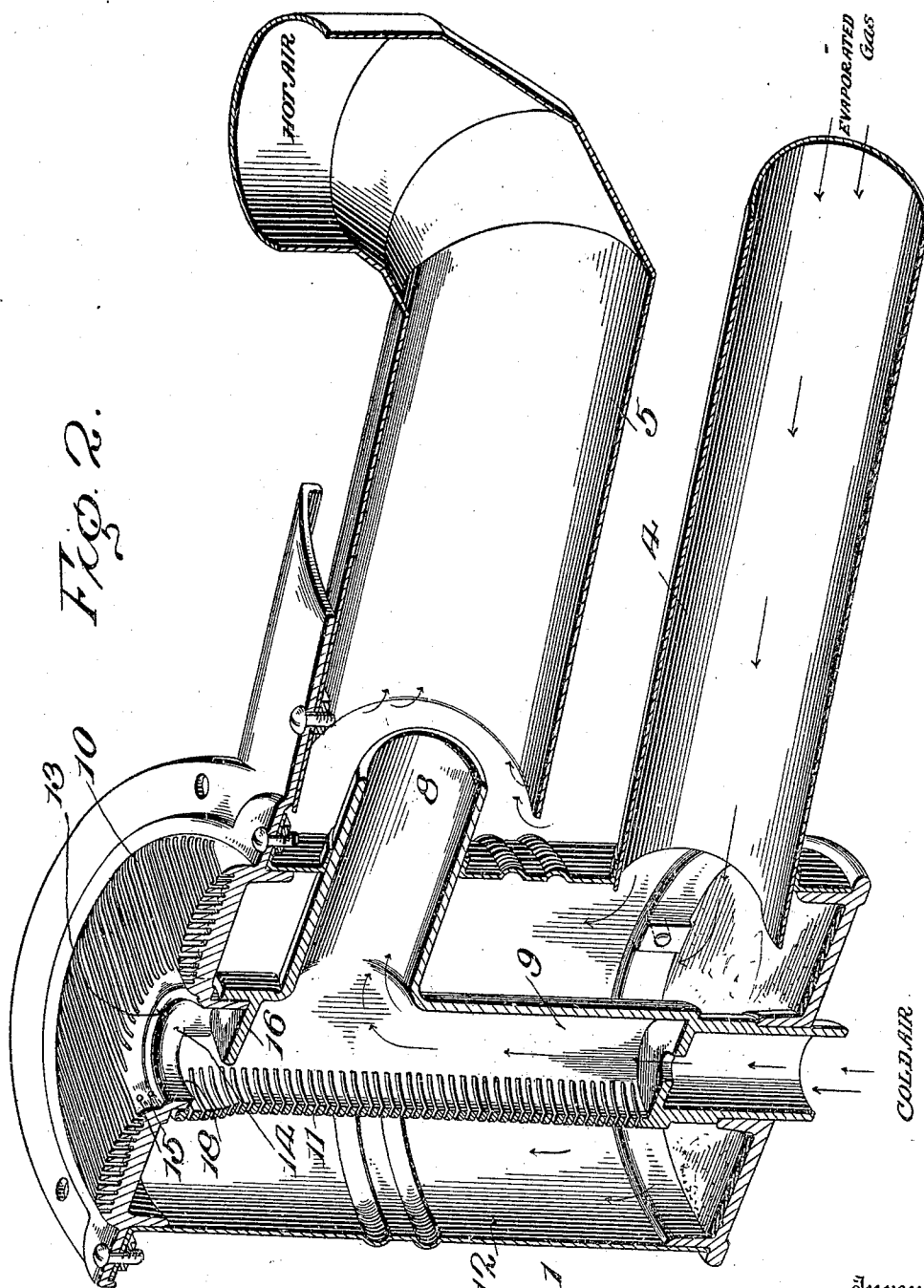
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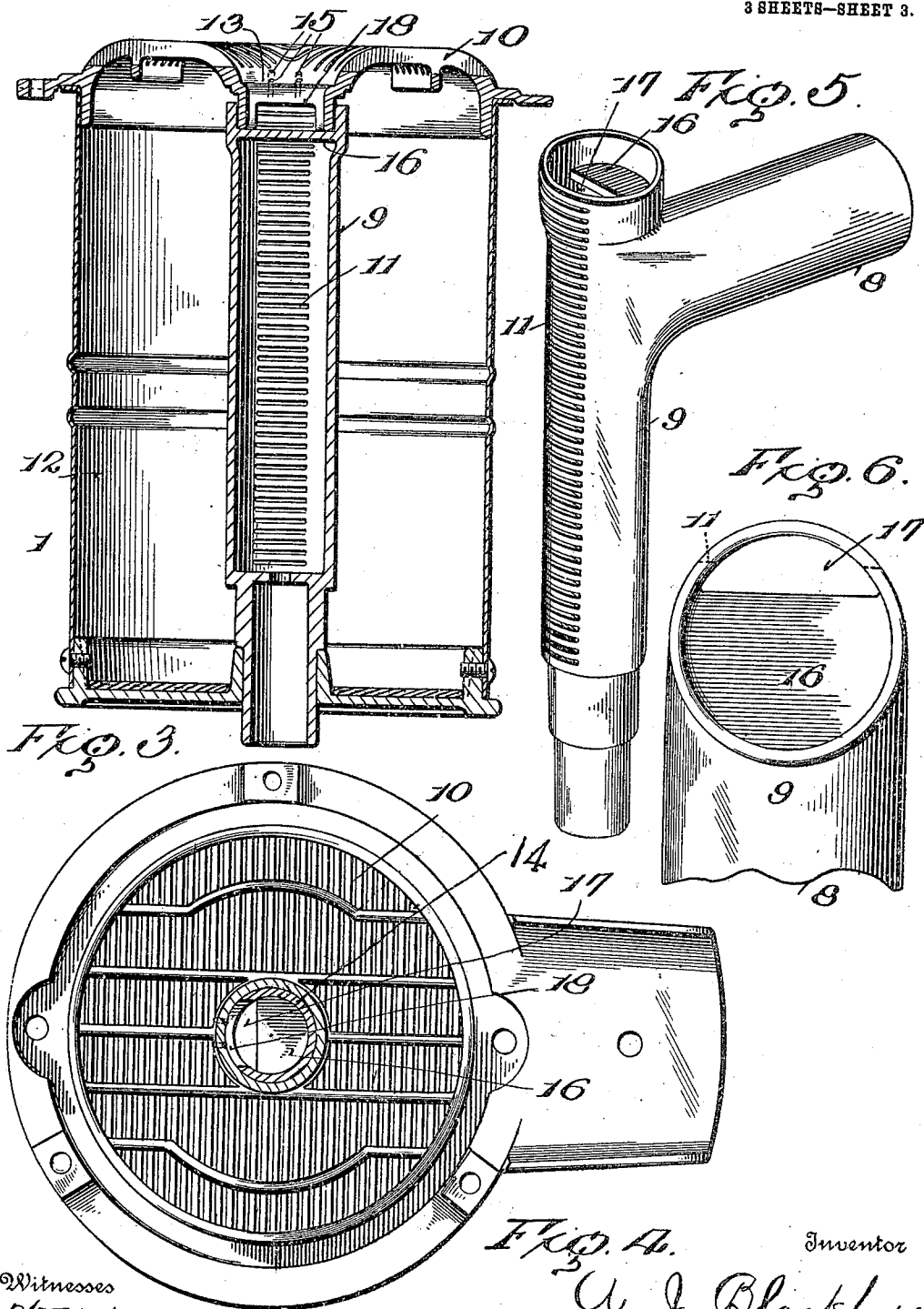
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3 SHEETS—SHEET 3.



Witnesses
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Fig. 4.
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UNITED STATES PATENT OFFICE.

ATWELL JAMES BLACKFORD, OF CLEVELAND, OHIO, ASSIGNOR TO AMERICAN STOVE COMPANY, OF ST. LOUIS, MISSOURI.

GASOLENE-BURNER.

952,412.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed November 20, 1909. Serial No. 529,078.

To all whom it may concern:

Be it known that I, ATWELL JAMES BLACKFORD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gasolene-Burners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in gasolene-burners, and pertains to that type in which the gasolene is vaporized or evaporated in the presence of atmosphere and fed by gravity through a tube to the lower end of the burner, the upper end of the burner having a collecting-hood which is connected with the point of evaporation through the medium of a hot air conducting pipe. In this form of burner in order to enable it to be used successfully, it has been necessary to provide what is known as a "subfire burner" at the lower end of the burner tube proper, for the purpose of providing a current of hot air to the evaporator as soon as the burner is started to prevent a condensation of the gasolene in the evaporator. In this type of burner with the subfire located at the bottom of the burner tube, it is found that the subfire will not always ignite from the main flame at the top, and that in the event of the main flame being extinguished by sudden draft, the subfire located at the bottom of the burner tube cannot be depended upon to re-light the main flame at the top.

The object of my present invention is to so construct and so locate the subfire in connection with a burner of this type that the subfire will always light from the main flame and without noise and to also insure the re-lighting of the main flame if accidentally extinguished, through the medium of the subfire.

In the accompanying drawings—Figure 1 is a side elevation of the aforesaid type of gasolene burner shown partly in section with my improvement applied thereto. Fig. 2 is a sectional perspective view showing the present improvement applied to a gasolene burner of the type referred to. Fig. 3 is a vertical central sectional view through the burner looking in the direction of the subfire openings. Fig. 4 is a detached inverted plan view of the slitted burner. Fig. 5 is a detached perspective view of the combined

hot air and subfire central burner tube. Fig. 6 is a top plan view of Fig. 5.

The general construction and operation of the type of gasolene burner to which this improvement relates will be first briefly described.

1 is the burner proper; 2 the evaporator; 3 the gasolene supply to the evaporator; 4 the vapor or gas-supply tube between the evaporator and the lower end of the burner; 5 the hot air supply tube which has its upper end 6 communicating with the evaporator, the lower end of the hot air pipe 5, being in communication with the atmosphere at the point 7, and with the outlet 8, of the combined central hot air and subfire tube 9. In operation the gasolene drops on the evaporator 2, in the presence of atmosphere and the gas or vapor formed by the evaporation, being heavier than air descends through the gas supply tube 4 into the lower end of the burner proper 1. This burner becomes filled with the vapor or gas until it escapes through the top of the burner where it is lighted. A part of the gas or vapor passes into the combined subfire and hot air tube 9 until the tube is filled, some of it escaping at the top of the tube and being ignited by the main flame at the burner 10, when it flashes back to the subfire which has heretofore been located at the bottom of the tube 9. The burning of the subfire then supplied heated air directly to the hot air supply tube 5, and immediately prevented condensation at the evaporator.

My Patent No. 739,144 shows, describes and claims the form of burner to which I have just referred. While the type of burner in my said patent has proven of great commercial success, yet it is found that in some instances the subfire will not light from the main flame and it is also found that if the main flame at the top of the burner becomes extinguished, the subfire at the bottom will not re-light it. By reason of this fact there is an escape of gas or vapor through the main burner into the room which is of disagreeable odor and highly dangerous, because all the gas will descend and settle on the floor of the room.

I will now describe the present improvement which overcomes the aforesaid defects. This improvement consists in providing a subfire through the entire length of the combined hot air and subfire tube 9, and this

continuous subfire may be accomplished by any desired form of burner opening or openings which extend throughout the length of the tube. The form here shown for this continuous subfire is a plurality of horizontal narrow slits 11, formed through the wall of the tube 9. These openings establish a communication between the main chamber 12 of the burner and the interior of the tube 9, and thereby causes a small subfire and continuous flame within the tube 9 throughout its length. As shown, the burner cap 10, for the main flame rests over the upper end of the tube 9 and has its center 13 depressed and provided with a depending flange 14, which fits within the upper end of the tube 9. By reason of the depression 13 in the burner cap, the slits which form the main burner do not extend entirely to the upper end of the tube 9, but the short distance between the upper end of the tube 9 and the escape openings of the main burner 10 is not sufficient to ordinarily prevent the lighting of the main flame by the subfire, should the former be accidentally extinguished, nor to prevent the lighting of the subfire from the main flame when starting the burner. However, I prefer to provide the depressed portion 13 of the burner 10 with one or more openings 15, which communicate with the main chamber 12 of the burner, and through which gas or vapor will escape and burn, thus spanning the short space between the upper end of the tube 9 and the escape openings of the burner 10 by a flame at these openings 15.

To insure the passage of the proper amount of hot air from the tube 9, into the hot air tube 5, the upper end of the tube 9 is partially closed by means of a shelf 16. This shelf 16 leaves a crescent or other suitably shaped opening 17, located preferably in a vertical line above the subfire burner 11. By reason of this shelf the proper amount of hot air is deflected into the hot air tube 5, while a proper escape opening for the subfire at the upper end of the tube 9 is also provided for. By reference to Fig. 2, it will be observed that the flange 14 is cut away at the point 18, which is located above the subfire 11.

While I have here shown the preferred form of details for carrying out my present improvement, yet I do not limit myself to this particular form, for the broad invention here disclosed may be carried out without departing from the spirit and scope of the present improvement.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A burner of the character described, including a main burner chamber, and an

evaporator in communication therewith, a main burner at the upper end of said chamber, an air tube within the main chamber, and a subfire burner located within the air tube communicating with the main chamber and extending to the main burner for the purpose described.

2. A burner of the character described including a main burner chamber, and an evaporator in communication therewith, a main burner at the top of the said chamber, an air tube within and extending throughout the length of the main burner chamber, the said air tube having a subfire burner extending substantially throughout its length for the purpose described.

3. In a burner of the character described, including a main burner chamber and an evaporator in communication therewith, an air tube within the main chamber and extending to the main burner, and a subfire within the air tube extending substantially to the main burner for the purpose described.

4. A burner of the character described including a main burner chamber, an air tube within the burner chamber, and an evaporator in communication with the said main chamber, the air tube having a communication with the evaporator, a subfire within the air tube extending substantially to the main burner and a deflector shelf within the upper portion of the air tube.

5. A burner of the character described, including a main burner chamber, a main burner at the upper end thereof, and an evaporator in communication with the main chamber, an air tube within the main chamber, and having a subfire extending to its upper end, the main burner having a depressed central portion provided with subburner openings spanning the space between the subfire burner of the air tube and the said main burner.

6. A burner of the character described including a main burner chamber having a main burner at its upper end and an evaporator in communication with the said burner chamber and an air tube within the burner chamber and having a subfire burner extending substantially to the main burner, the said tube having a communication with the evaporator and an interior shelf at a point above its said communication, the said shelf being cut away at the point opposite the subfire burner.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ATWELL JAMES BLACKFORD.

Witnesses:

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J. M. HARBECK.